

I-08.01 CADD Procedures

Design and plan preparation for Department construction projects is done with computer-aided design and drafting (CADD) procedures. The CADD Manual presents details on design and drafting procedures utilized by the department. The CADD Manual is available in electronic form on the web at <http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm>, click “Chapter VI: CADD Manual”. Parties outside the Department doing design work and plan preparation for NDDOT, should familiarize themselves with the procedures specified in the CADD Manual. The use of Microstation and Geopak systems is mandatory.

I-08.02 Reproduction Procedures

Design sections routinely require copies of plans and documents for field reviews and PS&E inspections. If a nominal number of copies are needed, they are made on the copy machine located in the Design or Bridge Division. If higher numbers of copies are necessary, or if the plans have a large number of sheets, or if special printing methods are necessary, the copies generally are ordered from the Printing Section of the Information Technology Division.

The District offices will sometimes require larger sized prints of project cross sections, etc. These normally are printed on the plotters located in each District office.

I-08.03 Final Plans Submittal

Final plans are typically prepared by Design/Bridge Division, Districts, or Consultants.

- **Design Division and Bridge Division Plans**

The lead designer is responsible for obtaining all sections of the plans including traffic safety, traffic control, roadway design, structural, etc. The lead designer will coordinate the plan preparation and will be responsible for assembling the final plans.

The original paper hard copy shall be sealed, signed, and dated by the lead designer or their direct supervisor with either the rubber stamp or crimp type. The signature and date shall be with blue ink to help distinguish the original from copies. All of the plan sheets shall be sealed, signed, and dated except for cross sections, table of contents, pit plats, quantity sheets, and environmental commitments. The title sheet of the plans will be sealed, signed, and dated by the Design Program Manager as the overall coordinator. The title sheet of the structural plans will be sealed, signed, and dated by the Bridge Engineer or the Assistant Bridge Engineer as the overall coordinator. In addition, the title sheet will also need to be signed by the Director of Office of Project Development (OPD) for strategic projects, or signed by the Design Engineer for OPD on non-strategic projects. The original paper hard copy of the final plans shall be submitted to the Planning and

Programming Division, and will be stored at the NDDOT central office. If FHWA has full involvement in the project, an electronic copy of the final plans is submitted to FHWA by the Planning and Programming Division.

In addition to the original paper hard copy, the final plans shall be submitted electronically in the form of a .pdf file, and placed in O:\81 Special Projects\DIP PLANS by the lead designer under the appropriate bid opening folder. Plan changes can be done at any time while the plans are in this folder. Planning and Programming will pull the electronic plans from this folder for bid opening. If plan changes need to be made and Planning and Programming has already pulled the plans from this folder, the lead designer must contact Planning and Programming. If there is not enough time to make the plan change, Planning and Programming will recommend a plan addendum. See Section I-11.01 of this manual for more information on plan addendums. The designer shall email **-Grp-DOT Bids Addenda** when the electronic plans have been placed in the O:\81 Special Projects\DIP PLANS bid opening folder, or if any plan changes have been done. This will notify Planning & Programming and Construction Services that the electronic plans have been submitted, or if any plan changes have been made.

The Electronic Plan Sheet Submittal Checklist shall be completed, signed, and placed in Filenet before the final electronic plans are placed in O:\81 Special Projects\DIP PLANS. The Electronic Plan Sheet Submittal Checklist is explained in more detail in Section I-08.04 of this section.

The electronic plan set shall have the seal, signature, and date replaced with the electronic distribution statement below:

This document was originally issued and sealed by _____, Registration Number PE-_____, on _____ and the original document is stored at the North Dakota Department of Transportation.

A copy of the plans may be distributed in two methods:

1. All paper or hard copy reproductions of the plans that are distributed shall contain a reproduction of the seal, signature and date.
2. The plans may also be distributed electronically. If the plans are to be distributed electronically, the plans must contain the electronic distribution statement as described above.

- **District Plans**

The District lead project designer is responsible for obtaining all sections of the plans including traffic safety, traffic control, roadway design, structural, etc. The District lead designer will coordinate the plan preparation and will be responsible for assembling the final plans.

The original paper hard copy shall be sealed, signed, and dated by the lead designer or their direct supervisor with either the rubber stamp or crimp type. The signature and date shall be with blue ink to help distinguish the original from copies. All of the plan sheets shall be sealed, signed, and dated except cross sections, table of contents, pit plats, quantity sheets, and environmental commitments. The title sheet of the plans will be sealed, signed, and dated by the District Engineer or Assistant District Engineer as the overall coordinator. In addition, the title sheet will also need to be signed by the Director of Office of Project Development (OPD) for strategic projects, or signed by the Design Engineer for OPD on non-strategic projects. For Preventive Maintenance projects, the District Engineer will assume responsibility and sign the plans in place of the Design Engineer. The original paper hard copy of the final plans shall be submitted to the Technical Support Contact for review and processing two weeks prior to the plan completion date. The original paper hard copy final plans are submitted to the Planning and Programming Division by the Technical Support Contact, and will be stored at the NDDOT central office. If FHWA has full involvement in the project, an electronic copy of the final plans is submitted to FHWA by the Planning and Programming Division.

In addition to the original paper hard copy, the final plans shall be submitted electronically in the form of a .pdf file and placed in O:\81 Special Projects\DIP PLANS\DISTRICT PLANS by the District designer. The District designer shall email the Technical Support Contact that the electronic plans have been submitted. The Technical Support Contact will then move the plans into the appropriate bid opening folder in the O:\81 Special Projects\DIP PLANS. Plan changes can be done at any time while the plans are in this folder. Planning and Programming will pull the electronic plans from this folder for bid opening. If plan changes need to be made and Planning and Programming has already pulled the plans from this folder, the Technical Support Contact must contact Planning and Programming. If there is not enough time to make the plan change, Planning and Programming will recommend a plan addendum. See Section I-11.01 of this manual for more information on plan addendums. The Technical Support Contact shall email **-Grp-DOT Bids Addenda** when the electronic plans have been placed in the O:\81 Special Projects\DIP PLANS bid opening folder, or if any plan changes have been done. This will notify Planning & Programming and Construction Services that the electronic plans have been submitted, or if any plan changes have been made.

The Electronic Plan Sheet Submittal Checklist shall be completed, signed, and placed in Filenet by the District designer before the final electronic plans are submitted to the Technical Support Contact and placed in O:\81 Special Projects\DIP PLANS\DISTRICT PLANS. The Electronic Plan Sheet Submittal Checklist is explained in more detail in Section I-08.04.

The electronic plan set shall have the seal, signature, and date replaced with the electronic distribution statement below:

This document was originally issued and sealed by _____, Registration Number PE-_____, on _____ and the original document is stored at the North Dakota Department of Transportation.

A copy of the plans may be distributed in two methods:

1. All paper or hard copy reproductions of the plans that are distributed shall contain a reproduction of the seal, signature and date.
2. The plans may also be distributed electronically. If the plans are to be distributed electronically, the plans must contain the electronic distribution statement as described above.

- **Consultant Plans**

The Consultant will coordinate and assemble the final plans. This may require getting sections of the plans that are not included in their contract, such as structure plans or guardrail plans, from the NDDOT assigned Technical Support Contact and assembling all the sections into one plan set.

The original paper hard copy shall be sealed, signed, and dated by the Consultant lead designer or their direct supervisor with either the rubber stamp or crimp type. The signature and date shall be with blue ink to help distinguish the original from copies. All plan sheets shall be sealed, signed, and dated by the Consultant except for the cross sections, table of contents, pit plats, quantity sheets, environmental commitments, and plans prepared by the NDDOT. The title sheet of the plans will be sealed, signed, and dated by the Consultant as the overall coordinator. In addition, the title sheet will also need to be signed by the Director of Office of Project Development (OPD) for Local Government Division or strategic projects, or signed by the Design Engineer for OPD on non-strategic projects. The Consultant shall submit the original paper hard copy final plans to the Technical Support Contact. The original paper hard copy final plans are submitted to the Planning and Programming Division by the Technical Support Contact, and will be stored at the NDDOT central office. If FHWA has full involvement in the

project, an electronic copy of the plans is submitted to FHWA by the Planning and Programming Division.

In addition to the original paper hard copy, the Consultant shall submit the final plans electronically to the Technical Support Contact in the form of a .pdf file. The Technical Support Contact will then place the plans on the O:\81 Special Projects\DIP PLANS in the appropriate bid opening folder. Plan changes can be done at any time while the plans are in this folder. Planning and Programming will pull the electronic plans from this folder for bid opening. If plan changes need to be made and Planning and Programming has already pulled the plans from this folder, the Technical Support Contact must contact Planning and Programming. If there is not enough time to make the plan change, Planning and Programming will recommend a plan addendum. See Section I-11.01 of this manual for more information on plan addendums. The Technical Support Contact shall email **-Grp-DOT Bids Addenda** when the electronic plans have been placed in the O:\81 Special Projects\DIP PLANS bid opening folder, or if any plan changes have been done. This will notify Planning & Programming and Construction Services that the electronic plans have been submitted, or if any plan changes have been made.

The Electronic Plan Sheet Submittal Checklist shall be completed and signed by the Consultant and sent to the Technical Support Contact with the final electronic plans. The Technical Support Contact will place the Electronic Plan Sheet Submittal Checklist in fileNet. The Electronic Plan Sheet Submittal Checklist is explained in more detail in Section I-08.04.

The electronic plan set shall have the seal, signature, and date replaced with the electronic distribution statement below:

This document was originally issued and sealed by _____, Registration Number PE-_____, on _____ and the original document is stored at the North Dakota Department of Transportation.

I-08.04 Electronic Plan Sheet Submittal Checklist

An Electronic Plan Sheet Submittal Checklist is required to ensure consistency with electronic plans. The Electronic Plan Sheet Submittal Checklist is shown in Chapter I, Section 8, Appendix A of the Design Manual (Section I-08 Appendix A), and is also located on the web at <http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm> on the “Reference and Forms” page under the “Miscellaneous Sheets” table.

The Electronic Plan Sheet Submittal Checklist shall be completed and placed in FileNet before the final electronic plans are placed in the proper Bid Opening Folder on the O:\81 Special Projects\DIP PLANS.

The Electronic Plan Sheet Submittal Checklist shall be completed as follows:

- **Designer**

The Designer shall first review the final electronic plan sheets accordingly with the Electronic Plan Sheet Submittal Checklist. The Designer shall check all items on the checklist and sign on the Designer signature line.

- **Supervisor**

After the Designer has completed and signed the checklist, the Designer shall submit the Electronic Plan Sheet Submittal Checklist to their supervisor. The supervisor will then review the final electronic plan sheets accordingly with the Electronic Plan Sheet Submittal Checklist. The supervisor shall check all items on the checklist and sign on the Supervisor signature line.

I-08.05 Standard Drawings

The standard drawings are located on the web at:

<http://www.dot.nd.gov/manuals/designmanual/designmanual.htm> under Standard Drawings. The standard drawings located on the department's website do not have the seal, signature or date on the drawings, but have the electronic distribution statement as described above. Both the original paper hard copy plan set and electronic plan set shall include electronic copies of the standard drawings with the electronic distribution statement. The lead designer shall go to the website and download the applicable standard drawings to be included in the plans. These standard drawings should be added prior to submitting the plans to the Planning and Programming Division or to the Technical Support Contact.

*The original hard copy of all standard drawings are sealed, signed and dated by the Design or Bridge Engineer, and are stored in the Traffic Safety Section of the Design Division.

I-08.06 Electronic Plan Files and Working Files Distribution

The final electronic plan set is assembled and submitted as described above. Individual electronic plan files and working files shall be created, stored, or submitted as follows:

- **Central Office and District**

Individual electronic plan files and working files used to create and assemble plans shall be created and stored on the NDDOT network R: Drive in the "Project" folder under the folder with the corresponding project number. District plan files that are created and stored outside of the network R: Drive must be copied/moved to the R: Drive no later

than when the plans are approved and signed.

- **Consultants**

All individual electronic plan files and working files that are created outside of the NDDOT shall be submitted to the Technical Support Contact on a CD. The Technical Support Contact will deliver the CD to the Survey and Photogrammetry Section of the Design Division. The Surveys and Photogrammetry Section will copy the files from the CD and place the files in the corresponding folders on the network R: Drive of the NDDOT. The CD will then be stored in Records and Retention.

I-08.07 Plan Files and Retention Policy

The original signed and sealed plan sheets are sent to the Records Center and microfilmed. When as-built drawings are received from the Districts responsible for constructing the projects, the as-built sheets are microfilmed and incorporated into the plans.